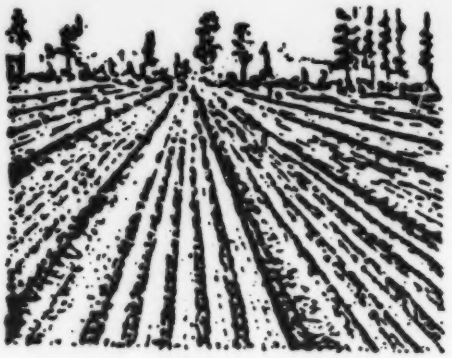

NURSERY NOTES

Forest Resources Branch
Queen's Park, Toronto, Ontario

April 1984 No.107

ROOTING CUTTINGS FROM 3-YEAR OLD NORWAY SPRUCE SEEDLINGS

By

B.J. Phillion

Ontario Ministry of Natural Resources

Hon. Alan W. Pope
Minister

John R. Sloan
Deputy Minister

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ROOTING CUTTINGS FROM 3-YEAR OLD NORWAY SPRUCE SEEDLINGS

The objectives were 1) to document the rooting ability of 3-year old Norway spruce seedlings.

2) to compare rooting of summer and winter cuttings in 3-year old Norway spruce.

3) to determine if indolebutyric acid (IBA) had any influence on rooting of 3-year old Norway spruce.

Methods a) Cuttings were collected from seedlings of 2+1 Norway spruce in the Orono Nursery transplant beds on August 11, 1982 (summer cuttings) and on January 28, 1983 (winter cuttings).

b) The cuttings were dipped into indolebutyric acid (IBA) and benlate fungicide (F). The source of IBA was STIM-ROOT from Plant Products Co.; it was applied as a powder (P) and also diluted in an ethanol/water solution 1:1 by volume (E). Benlate was mixed into the IBA at the rate of 1:5 by volume.

c) Cuttings were prepared and planted into Leach Fir Cell containers and placed in rooting tents (Phillion 1983).

d) In the summer cuttings, there were 10 different treatments as follows:

1) Control, no treatment
2) IBA 850 ppm P+F
3) IBA 3350 ppm P+F
4) IBA 6500 ppm P+F
5) IBA 275 ppm E+F
6) IBA 1100 ppm E+F
7) IBA 2200 ppm E+F
8) IBA 1000 ppm P
9) IBA 1300 ppm E
10) IBA 2600 ppm E

There were ten cuttings per treatment and 6 replications of the test for a total of 600 cuttings.

e) There were five different treatments for the winter cuttings:

1) Control, no treatment
2) IBA 2200 ppm E+F
3) IBA 6500 ppm P+F
4) IBA 3350 ppm P+F
5) IBA 2200 ppm E+F+ Wounding

Wounding consisted of 3 or 4 vertical cuts with a razor blade, each about 0.5 cm in length on the basal stem extending from the outer bark to the outer xylem. There were 10 cuttings per treatment and 8 replications for a total of 400 cuttings.

f) After 12 weeks in the rooting environment, the cuttings were excavated and examined for roots.

Results

Summer Cutting Summary

Treatment	%Cuttings Rooted	%Cuttings Calloused	Mean No. of Roots/Rooted Cutting	Mean Length of Longest Root (mm)
Control	92	5	3	10
IBA 850 ppm P+F	85	3	3	10
IBA 3350 ppm P+F	92	0	3	10
IBA 6500 ppm P+F	82	5	2	9
IBA 275 ppm E+F	86	0	2	10
IBA 1100 ppm E+F	92	3	3	10
IBA 2200 ppm E+F	80	5	3	10
IBA 1000 ppm P	85	3	2	10
IBA 1300 ppm E	81	5	3	10
IBA 2600 ppm E	80	16	3	10

Winter Cutting Summary

Treatment	%Cuttings Rooted	%Cuttings Calloused	Mean No. of Roots/Rooted Cutting	Mean Length of Longest Root (mm)
Control	80	1	3	4.2
IBA 2200 ppm E+F	84	6	3	3.0
IBA 6500 ppm P+F	90	3	3	3.8
IBA 3350 ppm P+F	95	3	3	4.0
IBA 2200 ppm E+F+ Wounding	86	4	3	4.0

Differences between the treatments in both summer and winter cuttings were statistically non-significant.

Conclusions

1) 80-95% rooting success was obtained from cuttings taken from 3-year old Norway spruce seedlings.

2) Cuttings taken in winter and summer performed equally well.

3) IBA did not improve the rooting of cuttings off 3-year old Norway spruce seedlings.

Note

After rooting, both winter and summer cuttings proceeded to flush and grow without cold treatment.

Literature Cited: Phillion, B.J. 1983. Large-scale production of black spruce cuttings for progeny tests. Proc. Int. Plant Prop. Soc. Meeting 32:619-625.